

PETITION FEE

Under 37 CFR 1.17(f), (g) & (h)

TRANSMITTAL

Fees are subject to annual revision)

Send completed form to: **Commissioner for Patents**
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	10/811,868
Filing Date	March 30, 2004
First Named Inventor	Y. KANEDA et al
Art Unit	2171
Examiner Name	TBD
Attorney Docket Number	TSM-38

Enclosed is a petition filed under 37 CFR § 1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of \$ 130.00 is enclosed.

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

Payment of Fees (small entity amounts are NOT available for the petition (fees)

- ☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:
- ☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments
- Enclose a duplicative copy of this form for fee processing.

☐ Check in the amount of \$ _____ is enclosed.

☒ Payment by credit card (From PTO-2038 or equivalent enclosed). Do not provide credit card information on this form.

Petition Fees under 37 CFR 1.17(f):**Fee \$400****Fee Code 1462**

For petitions filed under:

- § 1.53(e) - to accord a filing date.
- § 1.57(a) - to according a filing date.
- § 1.182 - for decision on a question not specifically provided for.
- § 1.183 - to suspend the rules.
- § 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
- § 1.741(b) - to accord a filing date to an application under §1.740 for extension of a patent term.

Petition Fees under 37 CFR 1.17(g):**Fee \$200****Fee code 1463**

For petitions filed under:

- §1.12 - for access to an assignment record.
- §1.14 - for access to an application.
- §1.47 - for filing by other than all the inventors or a person not the inventor.
- §1.59 - for expungement of information.
- §1.103(a) - to suspend action in an application.
- §1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
- §1.295 - for review of refusal to publish a statutory invention registration.
- §1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
- §1.377 - for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
- §1.550(c) - for patent owner requests for extension of time in ex parte reexamination proceedings.
- §1.956 - for patent owner requests for extension of time in inter partes reexamination proceedings.
- § 5.12 - for expedited handling of a foreign filing license.
- § 5.15 - for changing the scope of a license.
- § 5.25 - for retroactive license.

Petition Fees under 37 CFR 1.17(h):**Fee \$130****Fee Code 1464**

For petitions filed under:

- §1.19(g) - to request documents in a form other than that provided in this part.
- §1.84 - for accepting color drawings or photographs.
- §1.91 - for entry of a model or exhibit.
- §1.102(d) - to make an application special.
- §1.138(c) - to expressly abandon an application to avoid publication.
- §1.313 - to withdraw an application from issue.
- §1.314 - to defer issuance of a patent.

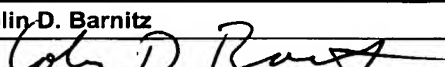
Name (Print/Type)

Colin D. Barnitz

Registration No. (Attorney/Agent)

35,061

Signature

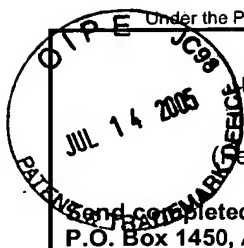


Date

July 14, 2005

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

**PETITION FEE**

Under 37 CFR 1.17(f), (g) & (h)

TRANSMITTAL

(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	10/811,868
Filing Date	March 30, 2004
First Named Inventor	Y. KANEDA et al
Art Unit	2171
Examiner Name	TBD
Attorney Docket Number	TSM-38

Enclosed is a petition filed under 37 CFR § 1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of \$ 130.00 is enclosed.

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

Payment of Fees (small entity amounts are NOT available for the petition (fees))

- ☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:
- ☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments
- Enclose a duplicative copy of this form for fee processing.

☐ Check in the amount of \$ _____ is enclosed.☒ Payment by credit card (From PTO-2038 or equivalent enclosed). Do not provide credit card information on this form.**Petition Fees under 37 CFR 1.17(f):****Fee \$400****Fee Code 1462**

For petitions filed under:

- § 1.53(e) - to accord a filing date.
- § 1.57(a) - to according a filing date.
- § 1.182 - for decision on a question not specifically provided for.
- § 1.183 - to suspend the rules.
- § 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
- § 1.741(b) - to accord a filing date to an application under §1.740 for extension of a patent term.

Petition Fees under 37 CFR 1.17(g):**Fee \$200****Fee code 1463**

For petitions filed under:

- §1.12 - for access to an assignment record.
- §1.14 - for access to an application.
- §1.47 - for filing by other than all the inventors or a person not the inventor.
- §1.59 - for expungement of information.
- §1.103(a) - to suspend action in an application.
- §1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
- §1.295 - for review of refusal to publish a statutory invention registration.
- §1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
- §1.377 - for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
- §1.550(c) - for patent owner requests for extension of time in ex parte reexamination proceedings.
- §1.956 - for patent owner requests for extension of time in inter partes reexamination proceedings.
- § 5.12 - for expedited handling of a foreign filing license.
- § 5.15 - for changing the scope of a license.
- § 5.25 - for retroactive license.

Petition Fees under 37 CFR 1.17(h):**Fee \$130****Fee Code 1464**

For petitions filed under:

- §1.19(g) - to request documents in a form other than that provided in this part.
- §1.84 - for accepting color drawings or photographs.
- §1.91 - for entry of a model or exhibit.
- §1.102(d) - to make an application special.
- §1.138(c) - to expressly abandon an application to avoid publication.
- §1.313 - to withdraw an application from issue.
- §1.314 - to defer issuance of a patent.

Name (Print/Type)

Colin D. Barnitz

Registration No. (Attorney/Agent)

35,061

Signature

Date

July 14, 2005

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



Appl. No. : 10/811,868 Confirmation No. 2776
Applicant : Y. KANEDA et al.
Filed : March 30, 2004
Title : MANAGEMENT COMPUTER AND METHOD OF
MANAGING DATA STORAGE APPARATUS
TC/AU : 2171
Examiner : TBD
Docket No. : TSM-38
Customer No.: 24956

PETITION TO MAKE SPECIAL
(ACCELERATED EXAMINATION UNDER 37 CFR §1.102(d))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Applicants petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). In support of this Petition, pursuant to MPEP § 708.02(VIII), Applicants state the following.

(A) REQUIRED FEE

This Petition is accompanied by the fee set forth in 37 CFR § 1.117(h).

Payment of the fee has been made in the manner set forth below in Section (G).

(B) ALL CLAIMS ARE DIRECTED TO A SINGLE INVENTION

Claims 1-20 are pending in the application. All the pending claims of the application are directed to a single invention. If the Office determines that all claims in the application are not directed to a single invention, Applicant will make election without traverse as a prerequisite to the grant of special status in conformity with established telephone restriction practice.

As set forth in independent claims 1, 8, 10, 12, 13 and 20, the invention is generally directed to a method of managing data storage apparatuses in a computer system in which the data storage apparatuses are connected hierarchically. Under claim 1, the invention is a management computer connected through a second network to data storage apparatuses that are connected to computers through a first network, said management computer comprising: a storage area information collecting module which collects respective pieces of storage area information from said data storage apparatuses connected through the second network, wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned; a hierarchy information collecting module which collects respective pieces of hierarchy information from said data storage apparatuses connected through said second network, wherein each piece of hierarchy information indicates hierarchy among data storage apparatuses held by a data storage apparatus concerned; and a management relation information creation module which sets hierarchy among said data storage apparatuses to create management relation information, based on said pieces of storage area information and said pieces of

hierarchy information collected in said storage area information collecting module and said hierarchy information collecting module.

Additionally, under independent claim 8, the invention is a management computer connected through a second network to data storage apparatuses that are connected to computers through a first network, wherein: said management computer comprises an arithmetic unit and a memory; and said arithmetic unit: collects respective pieces of storage area information from said data storage apparatuses connected through said second network, wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned; collects respective pieces of hierarchy information from said data storage apparatuses connected through said second network, wherein each piece of hierarchy information indicates hierarchy among data storage apparatuses held by a data storage apparatus concerned; sets hierarchy among said data storage apparatuses to create management relation information, based on said pieces of storage area information and said pieces of hierarchy information, and of storing the created management relation information into said memory; and outputs said management relation information stored in said memory.

Furthermore, under independent claim 10, the invention is a computer program product for a management computer connected through a second network to data storage apparatuses that are connected to computers through a first network, wherein: said computer program product comprises: a code that collects respective pieces of storage area information from said data storage apparatuses connected

through said second network, wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned; a code that collects respective pieces of hierarchy information from said data storage apparatuses connected through said second network, wherein each piece of hierarchy information indicates hierarchy among data storage apparatuses held by a data storage apparatus concerned; a code that sets hierarchy among said data storage apparatuses to create management relation information, based on the collected pieces of storage area information and the collected pieces of hierarchy information collected; a code that outputs the created management relation information; and a computer readable storage medium for storing the codes.

In addition, under claim 12, the invention is a computer system comprising: a group of data storage apparatuses including at least one first type data storage apparatus providing a storage area for storing data used by a computer and at least one second type data storage apparatus providing a storage area for storing data used by said computer through a first type data storage apparatus; a management computer that manages said group of data storage apparatuses; a first network connecting between said computer and said group of data storage apparatuses; a second network connecting between said group of data storage apparatuses and said management computer; wherein: said management computer comprises: a storage area information collecting module which collects respective pieces of storage area information from said data storage apparatuses connected through said second network, wherein each piece of storage area information relates to storage

areas provided by a data storage apparatus concerned; a hierarchy information collecting module which collects respective pieces of hierarchy information from said data storage apparatuses connected through said second network, wherein each piece of hierarchy information indicates hierarchy among data storage apparatuses held by a data storage apparatus concerned; and a management relation information creation module which sets hierarchy among said data storage apparatuses to create management relation information based on said pieces of storage area information and said pieces of hierarchy information collected in said storage area information collecting module and said hierarchy information collecting module.

Also, under independent claim 13, the invention is a data storage apparatus management method in a management computer connected through a second network to data storage apparatuses that are connected to computers through a first network, the method comprising steps of: collecting respective pieces of storage area information from said data storage apparatuses connected through said second network, wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned; collecting respective pieces of hierarchy information from said data storage apparatuses connected through said second network, wherein each piece of hierarchy information indicates hierarchy among data storage apparatuses held by a data storage apparatus concerned; and setting hierarchy among said data storage apparatuses to create management relation information, based on said pieces of storage area information and said pieces of hierarchy information.

Finally, under independent claim 20, the invention is a computer system comprising: a computer; data storage apparatuses; a management computer that manages said data storage apparatuses; a first network connecting between computers and said data storage apparatuses; a second network connecting between said data storage apparatuses and said management computer; and a management console connected to said management computer; wherein: said data storage apparatuses includes: one or more first type data storage apparatuses each providing storage areas for storing data used by said computers; and one or more second type data storage apparatuses each providing storage areas for storing data used by said computers through a storage area of said first type data storage apparatuses; said management computer comprises: a storage area information collecting module which collects respective pieces of storage area information from said data storage apparatuses, wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned; a management information creation module that recognizes a number of data storage apparatuses according to a number of said pieces of storage area information collected in said storage area information collecting module and prepares pieces of management information used respectively for managing said data storage apparatuses, wherein a number of said pieces is equal to a recognized number of data storage apparatuses; a hierarchy information collecting module which collects respective pieces of hierarchy information from said data storage apparatuses, wherein each piece of hierarchy information indicates hierarchy among data storage

apparatuses held by a data storage apparatus concerned; a management relation information creation module which sets hierarchy among said data storage apparatuses to create management relation information, based on said pieces of storage area information, said pieces of management information and said pieces of hierarchy information collected in said storage area information collecting module, said management information creation module and said hierarchy information collecting module; a screen data creation module that: creates hierarchy display screen data that is used for displaying said data storage apparatuses according to the hierarchy set in said management relation information creation module and pieces of data storage apparatus display data for respectively specifying said data storage apparatuses in said hierarchy display screen data, and adds pieces of information identifying those pieces of data storage apparatus display data to said management relation information; a screen data sending module which sends said hierarchy display screen data created in said screen data creation module and said data storage apparatus display data to said management console; a warning message creation module that: refers to said management relation information when an instruction to choice a certain piece of data storage apparatus display data is received from said management console, to extract a data storage apparatus held in said management relation information being associated with the chosen piece of data storage apparatus display data; judges whether the extracted data storage apparatus is a first type data storage apparatus or a second type data storage apparatus; and when the extracted data storage apparatus is judged to be said

second type of data storage apparatus, creates a warning message to send the created warning message to said management console; a management module choosing module that refers to said management relation information to extract a piece of management information corresponding to a certain piece of data storage apparatus display data that is chosen when an instruction to choice said certain piece of data storage apparatus display data is received from said management console, and sends the extracted piece of management information to said management console; a notification modification module that: refers to said management relation information to judge whether a data storage apparatus as a source of a status change notification is a first type data storage apparatus or a second type data storage apparatus, when said status change notification is received from said data storage apparatus (i.e., said source of the status change notification); and when said data storage apparatus is judge to be said second type of data storage apparatus, refers to said management relation information to create a new display message by reflecting the hierarchy acquired from said management relation information onto contents of the received notification; and a modification notification sending module which sends the display message created in said notification modification module to said management console; said management console comprises: a display module which displays the display data received from said management computer; an instruction receiving module which receives an instruction from an administrator through said display module; and an instruction sending module which sends an instruction received from the administrator through

said instruction receiving module to said management computer; said display module comprises a hierarchy display area, a warning message display area and a status change notification information display area; said hierarchy display area displays said hierarchy display screen data and said data storage apparatus display data; said warning message display area displays said warning message; and said status change notification information display area displays the display message received from said modification notification sending module.

(C) PRE-EXAMINATION SEARCH

A pre-examination search has been conducted, directed to the invention as claimed. The pre-examination search was conducted in the following US Manual of Classification areas:

<u>Class</u>	<u>Subclass</u>
707	4, 9, 102
710	36
711	100, 114, 117, 122, 162

Furthermore, a keyword search was conducted on the USPTO's EAST database, including the US patent database, the published patent applications database, and the European and Japanese patent abstract databases. In addition, a search for non-patent literature was conducted on the ACM (Association for Computing Machinery) online databases.

(D) REFERENCES DEEMED MOST-CLOSELY RELATED TO THE SUBJECT MATTER ENCOMPASSED BY THE CLAIMS

Based upon a review of the documents located by the search and the documents already of record in the application, the references deemed to be most-closely related to the subject matter encompassed by the claims are listed below.

These documents were made of record in the present application by the Information Disclosure Statement filed June 27, 2005.

<u>Document No.</u>	<u>Inventor</u>
US 20030182177	Gallagher et al.
US 20030188085	Arakawa et al.
US 20030229645	Mogi et al.
US 20040193760	Matsunami et al.
US 20040257857	Yamamoto et al.

Because all of the above-listed references are already of record in the present application, in accordance with MPEP § 708.02(VIII)(D), additional copies of these documents have not been submitted with this Petition. The remaining documents of record in the application are NOT deemed to be among those references most-closely related, and, accordingly, no discussion of the remaining documents is required for this Petition.

(E) DETAILED DISCUSSION OF THE REFERENCES

Following a brief discussion of the invention, the references deemed most-closely related are discussed below in Section (E)2, pointing out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed subject matter is patentable over the teachings of these documents.

1. Discussion of the Invention

The present invention includes a management computer that gives information required for operation of a data storage apparatus in a computer system having a hierarchical configuration of data storage apparatuses. The management computer is connected to the data storage apparatuses through a second network, and is able to provide information which makes it possible to manage the data storage apparatuses while taking into consideration the hierarchical configuration of the data storage apparatuses. It is submitted that the cited references, whether taken individually, or in combination, fail to teach or suggest the invention as claimed in independent claims 1, 8, 10, 12, 13 and 20.

As set forth in claims 1, 8, 10, 12, 13 and 20, a first feature of the invention includes collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information.

As will be discussed in more detail below, the prior art does not teach or suggest the above-described feature.

2. Discussion of the References Deemed to be Most-Closely Related

The published patent application to Gallagher et al., US 20030182177, discloses a database server 204 including databases 206 embodied on a mass

storage device. The databases 206 may store information about one or more collaborative hierarchical decision making trees along with other data. A process 400 gathers input from participants and stores information concerning a status of a decision tree or node. (See, e.g., Abstract; paragraphs 43, 47, and 51-53; and Figures 1 and 4.) However, unlike the present invention, Gallagher et al. do not disclose setting hierarchy among data storage apparatuses to create management relation information. More particularly, Gallagher et al. do not teach collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

The published patent application to Arakawa et al., US 20030188085, discloses a management server 400 displays information of a plurality of physical disks 130 in a clustered storage system. The information for each physical disk 130 includes name, model name. The server 400 utilizes a screen with a left portion of the bottom screen is a tree indicating a hierarchy based on a steps in a destination selection procedure. The screen shows the components and resources of the clustered storage 100 currently selected in the top screen. The tree shows a hierarchy of the root, the nodes 110, resources, such as the processor, the memory, the cache 120, the physical disks 130 and the bus 140, the logical volumes that use

the resources and modules, the ports 180, and, branching off from the nodes 110, it also shows hierarchy of free area of the physical disks 130. The management server 400 collects resource usage information of each node via a management network 490, and records the history of usage status of various resources of the clustered storage 100 by chronologically accumulating and retaining the resource usage information 402. (See, e.g., Abstract; paragraphs 21, 46-54, 58-59, 67-68 and 121-126; and Figures 1-2 and 14-16.) However, unlike the present invention, Arakawa et al. do not disclose collecting respective pieces of hierarchy information from data storage apparatuses, or setting hierarchy among the data storage apparatuses. More particularly, Arakawa et al. do not teach collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

The published patent application to Mogi et al., US 20030229645, discloses that mapping information 10a, 10b, 10c, 10d and load information 12a, 12b, are collected through management portions 104a, 104b and management program 102. A mapping management server 72 generates a hierarchy list of the hierarchical apparatus capable of altering the data mapping for an object being altered in data mapping. A data screen is produced for displaying the data mapping alteration in a

data mapping alteration edition box 586. The administrator is able to start a procedure for data mapping alteration. The server 72 collects mapping information 10 for the execution of this processing, and updates the mapping management information 321 into the latest information. The server 72 decides, by referring to the information 321, which storage region of which disk drive 54 is an available region for data migration alteration accompanied by copying, and produces that information. The server 72 provides the system configuration and load information to the administrator through the management terminal 90, and accepts the request for data mapping alteration. (See, e.g., Abstract; paragraphs 60, 159-161, 164-173, 182, 184, 185 and 186; and Figures 1 and 15.) Accordingly, unlike the present invention, Mogi et al. teach data mapping alteration, and do not disclose setting hierarchy among data storage apparatuses to create management relation information, based on collected pieces of storage area information and collected pieces of hierarchy information. More particularly, Mogi et al. do not teach do not teach collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

The published patent application to Matsunami et al., US 20040193760, discloses a file-based hierarchy storage control executed between storage devices

STR1 and another storage device 1a connected via a network. A disk pool of a divergent storage device STR2 can be treated as one of the disk pool of storage device STR0. The divergent storage device STR2 could be connected externally to the storage devices STR3. The file-based storage hierarchy is constructed with a storage device STR3. The storage device STR3 behaves as a central control controller for constructing a hierarchy storage system and various types of storage devices connected internally or externally to the storage devices STR3. (See, e.g., Abstract; paragraphs 152, 154, 173, 185, 202, 225-226, 229-232 and 238; and Figures 1 and 8-9.) However, unlike the present invention, Matsunami et al. do not disclose collecting pieces of hierarchy information from data storage devices to use in setting hierarchy among data storage apparatuses to create management relation information. More particularly, Matsunami et al. do not teach collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

The published patent application to Yamamoto et al., US 2004/0257857, discloses a first storage system connected to a second storage system. When SAN management software is executed, a management server 110 collects various information such as configuration information, information of resource utility rate,

performance monitor information from each of the devices within the computer system with its interface control section 116 through an IP network 175. Then, the management server 110 outputs the collected information to an output device such as the display 115 to present them to the storage management administrator. Also, the management server 110 receives instructions such as an operation/maintenance instruction from the storage management administrator through the input device 114 such as a keyboard, a mouse or the like, and transmits the received operation/maintenance instruction to each of the devices through the interface control section 116. Also included is an external device management information 205 for managing devices within an external storage system 180 connecting to a second storage system 130. A Management Adaptor (MA) 160 of the second storage system 130 retains, for each of the external devices existing within the external storage system 180, a set of information containing External Device Number 71 through List of Target Port ID/Target ID/LUN 79. The storage system 130 has a device hierarchy. (See, e.g., Abstract; paragraphs 48-49, 66-68 and 84; and Figures 1-2 and 17.) However, unlike the present invention, Yamamoto et al. do not disclose collecting respective pieces of hierarchy information from said data storage apparatuses or setting hierarchy among data storage apparatuses to create management relation information. More particularly, Yamamoto et al. do not teach collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on

the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

(F) CONCLUSION

As demonstrated by the above discussion, the references fail to teach or suggest collecting respective pieces of storage area information and respective pieces of hierarchy information from data storage apparatuses, and setting hierarchy among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information, in combination with the other limitations recited in claims 1, 8, 10, 12, 13 and 20.

Accordingly, it is submitted that all of these claims are patentable over the cited references taken individually, or in combination with each other. The remaining claims are dependent claims, claim additional features of the invention, and are patentable at least because they depend from allowable base claims. Accordingly, the requirements of 37 CFR §1.102(d) having been satisfied, the Applicants request that this Petition to Make Special be granted and that the application be examined according to prescribed procedures set forth in MPEP §708.02 (VIII).

The Applicants prepared this Petition in order to satisfy the requirements of 37 C.F.R. §1.102(d) and MPEP §708.02 (VIII). The pre-examination search required by these sections was "directed to the invention as claimed in the application for which special status is requested." MPEP §708.02 (VIII). The search performed in support

of this Petition is believed to be in full compliance with the requirements of MPEP §708.02 (VIII); however, Applicants make no representation that the search covered every conceivable search area containing relevant prior art. It is always possible that prior art of greater relevance to the claims may exist. The Applicants urge the Examiner to conduct his or her own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited above and any other prior art that may be located by the Examiner's independent search.

Further, while the Applicants have identified and discussed certain portions of each cited reference in order to satisfy the requirement for a "detailed discussion of the references, which discussion points out, with the particularity required by 37 C.F.R. §1.111(b) and (c), how the claimed subject matter is patentable over the references" (MPEP §708.02(VIII)), the Examiner should not limit review of these documents to the identified portions, but rather is urged to review and consider the entirety of each reference.

(G) FEE PAYMENT (37 C.F.R. 1.17(i))

The fee required by 37 C.F.R. § 1.17(i) is to be paid by:

☒ the Credit Card Payment Form (attached) for \$130.00.

☐ charging Account 50-1417 the sum of \$130.00.

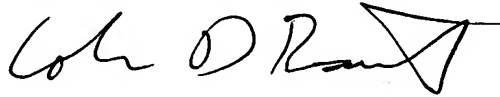
Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the

Appl. No. 10/811,868
Petition to Make Special

Docket No. TSM-38

deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit
Account No. 50-1417. A duplicate of this petition is attached.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Colin D. Barnitz", with a stylized flourish at the end.

Colin D. Barnitz
Registration No. 35,061

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 Diagonal Rd., Suite 370
Alexandria, Virginia 22314
(703) 684-1120
Date: July 14, 2005